

REMARKS

Claims 1-6, 8, 9 and 13 are pending in this Application. Upon entry of this Amendment, Claim 1 will be deleted and Claims 2-6, 8, 9 and 13 will remain pending in the case.

Applicants acknowledge with appreciation, the withdrawal of the rejection of Claims 1-6, 8 and 13 under 35 U.S.C. Section 102(a).

However, Claims 1-6, 8 and 13 remain rejected under 35 U.S.C. Section 103(a). The Examiner maintains that the instant claims and Daum et al differ only in that R² is CH₃, and asserts this is generically disclosed and guided by Daum et al. The Office Action alleges that the only difference is the particular sulfonamide and alkyl-di-substitution. The Office Action further alleges that di-substitution was both generically taught and exemplified, citing columns 15, 16, 21, 41 and 43.

The Office Action did not find the Declaration submitted by the Applicants sufficient. The Office Action noted the Declaration compared a mono-substituted compound with a di-substituted compound, but the Office Action alleges that this does not obviate the prima facie obviousness rejection since the difference is the specific di-combination versus generically picking and choosing an array of substituents. Further, the Office Action alleges that the data indicated among variations of plants each individual compound varying in its effect which the Office Action alleges supports the basis of rejection that variation is expected among a Markush group. The Office Action requests statistical analysis to support the allegation that there was surprising increase in herbicidal activity.

In response to the Office Action, Applicants have deleted Claim 1 and have amended Claim 2 to be the independent claim in the case. Claim 2 as amended is particularly directed to the di-substitution pattern with specific substituents for which improvements are fully and clearly supported by the Declaration.

Applicants respectfully and strongly disagree with the Examiner that the Declaration is insufficient to support the claims, particularly the new independent Claim 2.

With regard to the statistical analysis, Applicants have submitted such Declarations in many other cases, and a statistical analysis has never before been requested. Clearly the data in the Declaration is statistically relevant.

Dr. Drewes, the Declarant and an inventor in this case has worked in the field of plant protection and chemical research since 1989. He has experience in testing chemical compounds for their utility as plant protection agents, especially herbicides. With regard to any alleged insufficiency of the Declaration to establish the non-obviousness of the present invention, it is Dr. Drewes' opinion that the data in the Declaration demonstrates that the compounds according to the instant invention possess important improvements in comparison to mono-substituted compounds.

The improvements found are significant. Please note in this regard that for some weeds the inventive compounds show strong herbicidal action against the weeds (e.g. damage > 80%) while the compounds with a mono-substitution pattern show no herbicidal action against such weeds (e.g. damage = 0%). Furthermore, in some instances a complete damage (e.g. 95 - 100%) is observed with the present invention, while the mono-substituted compounds only show minimal damage to the weeds. Such differences in herbicidal activity can be clearly distinguished by the biologist.

Also, some of the inventive compounds possess good crop selectivity (e.g. damage < 5%) while the compounds with a mono-substitution pattern damage crops to a much larger degree (e.g. damage > 10%).

Therefore, the compounds of the present invention are characterised by several improvements (although it may be different ones for different compounds when being compared with their closest mono-substituted counterparts) which indicates to Dr. Drewes that a group of compounds has been found in the tests which has a surprisingly good "herbicidal utility". The aggregate or overall improvements make it clear that the claimed compounds demonstrate unexpectedly superior results in their herbicidal activity and provide better performance than would otherwise be expected from the compounds known from the prior art.

In this regard, Dr. Drewes stresses that the tests have all been performed using a standard testing system which is well established in the art for the purpose of identifying new herbicides (see e.g. Chemie der Pflanzenschutz- und Schädlingsbekämpfungsmittel, Vol. 5, editor R. Wegler, Springer Verlag, 1977, page 15 to 25). In this test the active compound is allowed to act on several weed plants and crop plants (usually 5 or more) of each kind of weed or crop which makes

the observed values of damage the average of more than one measurement. The test has been successfully used for many years and has been found reliable with regard to the findings observed in such tests.

Based on the aforesaid it is clear that the inventive compounds which have been tested with the above described test possess significant improvements over their mono-substituted analogues with regard to their herbicidal utility. Dr. Drewes is willing to provide the foregoing information in the form of a Declaration if that would be deemed necessary by the Examiner in this case.

Applicants also respectfully point out to the Examiner that Daum et al is assigned to the same assignee as the present invention, and respectfully urge that the assignee is in a particularly advantageous position to determine what is and is not obvious in its intellectual property portfolio.

In this case, there has been a realisation that di-substitution on the benzene ring portion of the molecule, with one of the substituting moieties being a sulphur atom having an optionally fluoro-, chloro-, or bromo- substituted alkyl having up to 6 carbon atoms attached thereto, and the second substituting moiety being that as defined in R^2 , leads to an unexpectedly superior herbicide. This is fully supported by the Declaration filed in this case, and the claims, upon entry of this Amendment (both before and most certainly after) entry of this Amendment are commensurate in scope with that realisation.

It is respectfully urged that Daum et al, in disclosing for example at column 3, line 30 through column 4, line 68 its many possible substituents for its R^4 and R^5 has not disclosed or suggested the particular realisation of the present invention that is described immediately above. Nor is this particular invention disclosed at those portions of Daum et al referred to in the Office Action, namely columns 15, 16, 21 and 41, where no di-substitutions are disclosed which include the sulphur atom (as claimed in the $-S-R^1$ moiety affixed to the benzene ring) and R^2 of the present invention in combination with one another. The unexpectedly superior herbicidal activity of this particular combination represents an important advance in the art, and as such, Applicants respectfully assert this not obvious in light of the many

other possible combinations of moieties in these positions, and in light of the fact that there is no teaching or motivation in the art that would guide one to this realisation.

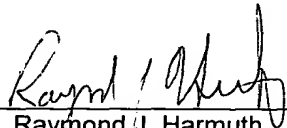
If the Examiner desires comparisons in yet another Declaration, of other di-substitutions with the di-substitutions of the present invention as claimed in these amended claims, Applicants respectfully request that the Examiner provide some guidance as to what should be compared. The Declaration by Dr. Drewes clearly shows the superiority of the present invention over an identical mono-substituted compound. Applicants respectfully urge that this is the most relevant comparison, and providing a comparison, for example, with the di-chloro di-substitutions of column 9 of Daum et al with the present invention in fact will yield little useful comparison because the compounds would be so markedly different. Since Daum et al has not focused on the particular di-substitution of the present invention in its teachings and has not motivated or suggested that one select the particular di-substitutions of the present invention, Applicants are not sure what the Examiner wants to compare. Is the Examiner requesting a comparison of the present invention with, for example, the non -S-R¹ moiety containing di-substitutions of Daum et al at columns 9, 15, 21 and 41? If so, can the Examiner give some guidance as to which comparisons and how many would the Examiner deem necessary to support the claims of the present invention, with Applicants respectfully reminding the Examiner of the cost of such comparisons in both time and money. Applicants again respectfully urge that such comparisons are not necessary as Daum et al contained no teaching or motivation to select the particular combination of the present invention, and that therefore the present invention is fully patentable over and is not obvious in light of Daum et al.

CONCLUSION

Accordingly, reconsideration of the claims as amended, withdrawal of the rejection and allowance of the claims are respectfully requested. If the Examiner is of the opinion that the instant application is in condition for **other** than allowance, the Examiner is requested to contact the Applicants' attorney at the telephone number given below so that additional changes to the claims may be discussed.

Respectfully submitted,

By



Raymond J. Harmuth
Attorney for Applicants
Reg. No. 33,896

Bayer Corporation
100 Bayer Road
Pittsburgh, Pennsylvania 15205-9741
(412) 777-3916
FACSIMILE PHONE NUMBER:
(412) 777-3902
s/rmc/rjh/0153